What is claimed is:

CLAIMS

- A telecommunications apparatus comprising:

 a plurality of telecommunications physical layer interfaces,
 one or more telecommunications higher-layer processors, and
 a digital cross-connect connected to route telecommunications traffic among the physical layer interfaces and the one or more higher-layer processors.
- 2. The apparatus of claim 1 wherein at least one of the physical layer interfaces is a SONET physical layer interface.
- 3. Th apparatus of claim 1 wherein a higher layer processor is an asynchronous transfer mode (ATM) processor.
- 4. The apparatus of claim 1 wherein a higher layer processor is an internet protocol (IP) processor.
- 5. The apparatus of claim 2 wherein the digital cross-connect is configured to provide 1:1 automatic protection switching for communications traffic from at least one of the physical layer interfaces to one or more higher-layer interfaces.
- The apparatus of claim 2 wherein the digital cross-connect is configured to provide
 1:N automatic protection switching for communications traffic from at least one of
 the physical layer interfaces to one or more higher-layer interfaces.

- 7. The apparatus of claim 2 wherein the digital cross-connect is configured to provide 1:1 automatic protection switching for communications traffic to at least one of the physical layer interfaces from one or more higher-layer interfaces.
- 8. The apparatus of claim 2 wherein the digital cross-connect is configured to provide N:1 automatic protection switching for communications traffic to at least one of the physical layer interfaces from one or more higher-layer interfaces.
- 9. A packet-switching system comprising:

one or more telecommunications apparatuses, each apparatus including:

a plurality of telecommunications physical layer interfaces, one or more telecommunications higher-layer processors, and

a digital cross-connect connected to route telecommunications traffic among the physical layer interfaces and the one or more higher-layer processors,

and

a packet switch fabric connected to switch telecommunications traffic received at one or more of the physical layer interfaces to one or more of the physical layer interfaces.

- 10. The system of claim 9 wherein at least one of the physical layer interfaces is a SONET physical layer interface.
- 11. The system of claim 9 wherein a higher layer processor is an asynchronous transfer mode (ATM) processor.
- 12. The system of claim 9 wherein a higher layer processor is an internet protocol (IP) processor.

- 13. The system of claim 10 wherein the digital cross-connect is configured to provide 1:1 automatic protection switching for communications traffic from at least one of the physical layer interfaces to one or more higher-layer interfaces.
- 14. The system of claim 10 wherein the digital cross-connect is configured to provide1:N automatic protection switching for communications traffic from at least one ofthe physical layer interfaces to one or more higher-layer interfaces.
- 15. The system of claim 10 wherein the digital cross-connect is configured to provide 1:1 automatic protection switching for communications traffic to at least one of the physical layer interfaces from one or more higher-layer interfaces.
- 16. The system of claim 10 wherein the digital cross-connect is configured to provide N:1 automatic protection switching for communications traffic to at least one of the physical layer interfaces from one or more higher-layer interfaces.
- 17. A method of switching telecommunications traffic comprising the steps of:
 - (A) receiving telecommunications traffic at a telecommunications physical interface;
 - (B) routing the received telecommunications traffic from the physical interface to a digital cross-connect; and
 - (C) routing the telecommunications traffic through the cross-connect to a telecommunications higher-layer processor.
- 18. The method of claim 17 further comprising the step of:
 - (D) routing the telecommunications from the higher-layer processor through a packet switch fabric to a higher-layer processor;
 - (E) routing the telecommunications from the higher layer processor to a digital cross-connect; and

- (F) routing the telecommunications from the higher layer processor to a telecommunications physical interface.
- 19. The method of claim 17 wherein the step (A) of receiving telecommunications traffic further comprises the step of:
 - (A1) receiving telecommunications at a SONET physical layer interface.
- 20. The method of claim 17 wherein the step (C) of routing the telecommunications traffic further comprises the step of:
 - (C1) routing the telecommunications traffic to an asynchronous transfer mode (ATM) processor.
- 21. The method of claim 17 wherein the step (C) of routing the telecommunications traffic further comprises the step of:
 - (C2) routing the telecommunications traffic to an internet protocol (IP) processor.
- 22. The method of claim 17 wherein the step (C) of routing the telecommunications traffic further comprises the step of:
 - (C3) providing 1:1 automatic protection switching for communications traffic from at least one of the physical layer interfaces to one or more higher-layer interfaces.
- 23. The method of claim 17 wherein the step (C) of routing the telecommunications traffic further comprises the step of:
 - (C4) providing 1:N automatic protection switching for communications traffic from at least one of the physical layer interfaces to one or more higher-layer interfaces.
- 24. The method of claim 18 wherein the step (E) of routing the telecommunications traffic further comprises the step of:

- (E1) providing 1:1 automatic protection switching for communications traffic to at least one of the physical layer interfaces from one or more higher-layer interfaces.
- 25. The method of claim 18 wherein the step (E) of routing the telecommunications traffic further comprises the step of:
 - (E2) providing N:1 automatic protection switching for communications traffic to at least one of the physical layer interfaces from one or more higher-layer interfaces..